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(54) HYDROGEN OCCLUSION BODY AND PRODUCTION OF HYDROGEN OCCLUSION BODY

(57)Abstract:
PROBLEM TO BE SOLVED: To enhance an assembly characteristic and to facilitate production while maintaining hydrogen occludability by forming carbon fibers having the hydrogen occludability directly on a metallic substrate surface.
SOLUTION: The carbon fibers having the hydrogen occludability are ≤1 μm in the diameter of the fiber and has good crystallinity of ≤5 wt.% in amorphous phase, exhibiting the form that graphenes line up in parallel or perpendicularly regularly. The hydrogen occlusion body is produced by three stages. The crystal bearings of the metallic substrate surface are unified (a first stage). The metallic substrate is subjected to any of cold rolling, a combination of cold rolling and heat treatment and hot rolling, by which the texture is formed. A recessed part 3 is formed on the metallic substrate 2 surface (a second stage). The metallic substrate 2 surface is etched to form micropits in such a manner that the crystal faces in the bearings where the carbon fibers glow preferentially are the surfaces of the pits. Gaseous raw material is supplied to the substrate 2 and the carbon fibers 1 having the hydrogen occludability are grown in a vapor phase in the recessed part 3 (a third stage). The graphenes line up regularly in parallel in the carbon fibers 1.

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